



FINDING OF NO SIGNIFICANT IMPACT

Construct, Rehabilitate and Repair Restrooms Parkwide Grand Canyon National Park

Grand Canyon National Park proposes to rehabilitate five existing restrooms, replace existing chemical toilets at ten sites with prefabricated vault toilets and construct a new restroom at three sites that currently do not have a toilet. Proposed restroom locations occur on the South Rim, Desert View, North Rim, Bright Angel Trail, Indian Garden and Phantom Ranch.

The proposed project is needed to address the following management concerns:

- Many of the existing chemical toilets in the park are under-sized portable toilets that must be pumped frequently during peak visitor use seasons to avoid overflowing.
- The existing restroom at Yavapai Observation Station is inadequate. It was built in the 1960's and is in need of repairs and upgrading. The building's low sloped roof does not shed water and snow effectively and the walkways and paths near the restroom do not meet accessibility standards. In addition, the current capacity of this restroom is not meeting the current demands at this popular visitor destination and needs to be expanded.
- The existing restroom at Hermits Rest is substandard and inadequate. There is a strong chemical odor due to the large number of units necessary to meet visitor needs at this popular visitor destination. Toilets are in cramped spaces. The restroom does not meet current accessibility standards. There are existing conflicts between vehicles and pedestrians in the area around the restrooms and redesign of the site is needed to eliminate or minimize conflicts.
- The Desert View campground restroom is approximately 15 years old and is beginning to show signs of wear, particularly in the interior where fixtures and wall and floor finishes are damaged. The heat and ventilation system is inadequate and the roof is in need of repair.
- There is currently no restroom facility at Three Mile or Pipe Creek along the Bright Angel Trail or at the Yaki picnic area along East Rim Drive on the South Rim. A restroom facility at each of these locations is necessary to meet public demand in these areas. Visitors in these areas, in the absence of a toilet nearby, often use the surrounding area which results in unsanitary conditions and localized problems that negatively affect other park visitors and park resources.
- There is currently no potable water source at the remote Pipe Creek rest house along the Bright Angel Trail, although water (piped from the nearby creek) used to be available here. Many visitors pass through this remote area and expect a water source at this rest house and are unprepared to purify creek water, increasing safety risks due to dehydration.

Objectives of the Action

1. Provide adequately-sized restroom facilities to meet current needs and anticipated future visitor demand and that maximize the length of time between maintenance trips.
2. Provide clean, functional and serviceable restroom facilities that implement the concepts of sustainable facility design, and that are aesthetically pleasing and appropriate for their location within Grand Canyon National Park.
3. Provide a potable water source at Pipe Creek rest house along the Bright Angel trail.

4. Minimize new ground disturbance and tree removal.

In September 2004 the National Park Service (NPS) prepared an *Environmental Assessment for the Construct, Rehabilitate and Repair of Restrooms Parkwide*. This EA, in accordance with the National Environmental Policy Act, analyzes the impacts that will likely result from implementation of the project. The environmental assessment evaluated three alternatives, Alternative A, the No Action Alternative, Alternative B, the agency's preferred alternative, and Alternative C.

PREFERRED ALTERNATIVE

Alternative B will rehabilitate five existing restrooms, replace existing chemical toilets with vault toilets at ten sites, install one new vault toilet at a site with no existing restroom, and construct two new composting toilets along the Bright Angel Trail.

I. Comfort Station Rehabilitation – Yavapai Observation Station restroom is a Mission 66 comfort station that will be rehabilitated. Phantom Ranch restroom (built in 1981), Bright Angel Campground restroom (built in 1981), Desert View campground (built in 1984) and Indian Garden composting toilet (built around 1987) are also in need of upgrading and repair.

- Yavapai Observation Station – The existing restroom will be extensively rehabilitated and expanded on the north side of the building (an addition to the building of approximately 8 feet) to provide 6 toilet stalls for each of the men's and women's restrooms (an increase of two toilet stalls per side). Interior rehabilitation actions will include new plumbing drains and fixtures, new electrical, new heating and ventilation system, new interior finishes, and new toilet partitions. Exterior rehabilitation will include removal of the existing roof and replacement with a new corrugated steel roof, new stucco wall finish, and new lighting. Site work will include replacement of existing asphalt walkways with new asphalt and concrete paving and a new water fountain. The existing pole fence surrounding the building will be dismantled on the north side during construction of the expansion and reinstalled in the same location. All work will be within previously disturbed areas. Substantial pruning of mature trees near the building entrance will need to occur where the trees intrude upon paths/pedestrian circulation. Tree pruning will follow the Park's pruning guidelines. One fairly large pinyon pine tree near the restroom entrance will need to be removed as part of this project.
- Desert View Campground – Interior rehabilitation efforts for this comfort station will include new wall and ceiling finishes, new epoxy floor finish, new plumbing fixtures and restroom accessories, new toilet partitions and a new heating and ventilation system. Exterior rehabilitation efforts will include new doors and hardware and repair and repainting of roof trim and fascia. The roof will likely be replaced with a corrugated steel roof. Nixalite (a deterrent to California condor roosting) will be installed on the roof.
- Phantom Ranch – Rehabilitation efforts for this restroom will include the following actions: repair or replace roofing, replace interior surfaces with new finishes, replace plumbing fixtures with water-conserving models, and repair/refinish exterior finishes. Nixalite (a deterrent to California condor roosting) will be installed on the roof. No site work is necessary.
- Bright Angel Campground – Rehabilitation efforts for this restroom are similar to those for the Phantom Ranch restroom and will include the following actions: repair or replace roofing, replace interior surfaces with new finishes, replace plumbing fixtures with water-conserving models, and

repair/refinish exterior finishes. Nixalite (a deterrent to California condor roosting) will be installed on the roof. No site work is necessary.

- Indian Garden –The composting toilet at the upper end of the campground will be rehabilitated. Rehabilitation efforts will be relatively minor including such things as roof shingle repair, replacement of doors and plumbing fixtures.

While none of these buildings are considered eligible for the National Register of Historic Places, the specific components necessary for the rehabilitation of these five restrooms and their resulting appearance will be developed more fully among NPS staff during the design phases for this project. This group will evaluate and consider the comments received from the Arizona State Historic Preservation Office and determine the applicability of the Secretary of the Interior's Standards for the Treatment of Historic Properties, park architectural guidelines, and existing management policies, while also addressing the purpose and need for action.

Yavapai Observation Station restroom is situated near Yavapai Observation Station, a National Historic Landmark building. This restroom is outside of the National Register boundary and while technically a Mission 66 structure, it is not visible from the observation station and does not make a significant contribution to the understanding of this period in history.

Phantom Ranch, Bright Angel and Indian Garden restrooms occur within the Cross Canyon Corridor Historic District. Although the restrooms are not contributing elements to the historic district, the selection of roof color and exterior facades will be carefully considered. The Assessment of Effects Form (AEF) being prepared separately for this project to evaluate potential impacts of this project to cultural resources under Section 106 of the National Historic Preservation Act describes necessary recommendations for each structure in more detail and these are included in the list of mitigation measures included in this document.

II. Replacement of Existing Chemical Toilets with Vault Toilets

Vault Toilet Type and Style. Portable chemical toilets at each of the following sites will be replaced with prefabricated vault toilet buildings. Vault units will either be single-stall or two-stall precast concrete units, depending on the site. Selected vault toilet styles will be appropriate for their location and surrounding landscape, such as a higher-sloped roof and darker color for some East Rim Drive sites and North Rim sites (Cascadian style, or something similar), which are in more forested areas, and a lower-sloped roof and lighter color for Hermits Rest, Hopi Point and Tusayan Museum on the South Rim (Gunnison or Tioga styles, or something similar) which are in more open terrain. Customization of this standard vault style (color, exterior façade, etc.) may be used at some sites, such as Tusayan Museum where toilets occur near historic properties or within cultural landscapes.

Installation. The existing chemical toilets at each site will be removed and stored in a park-approved appropriate location. Vault toilet units will be prefabricated off site and brought in by vehicle. An approximately 4-foot deep pit will be dug to accommodate the vault itself. This may be done using a backhoe or similar piece of equipment. Some blasting may be necessary if the site is excessively rocky. Installation will take approximately 5 – 15 days per vault unit; site improvements may require additional time (i.e. Hopi Point will require more time to develop access paths and build masonry structures, as needed.) Staging areas, if needed, will be located near the project location in existing disturbed areas.

Maintenance. Following installation, vault units will need to be periodically serviced (pumped and cleaned). The frequency of pumping will vary by site and volume of use, but will generally be much less

often than that currently required for the smaller capacity chemical toilets. It is estimated that the need to pump these toilets will be reduced by as much as 80%. Some existing chemical toilet sites such as at Hermits Rest, Hopi Point and Bright Angel Trailhead currently require almost daily pumping. Replacement of Hermits Rest and Hopi Point toilets with vault units will reduce this pumping to about once a week. For other less-visited areas, such as Buggeln Hill and Yaki Point Picnic Area, pumping will likely occur every two weeks. When the toilets need to be serviced (pumped), this will include driving a service vehicle in and pumping the waste from the vault. Pumping will occur after approximately 10,000 uses, at a minimum. It is likely that pumping will occur almost twice as often as this manufacturer-recommended usage is reached, simply to minimize smell and sanitation concerns that result more quickly in Arizona's hot and dry climate (P. Steinkopf, pers. com. 6/17/04). Maintenance vehicles will access the vaults on a service drive or path at the back of each unit. The need for service access will be considered during the design and placement of each vault. Disturbance during servicing will be negligible, involving simply driving the vehicle near the vault unit on previously disturbed areas.

- Hermits Rest – The existing restroom building will be demolished. This will include removal and disposal of all of the holding tanks, wood deck and the existing gate. The restroom will be replaced with four, two-stall vault toilets (Figure 5). Site work will include construction of a seven-foot tall stone masonry wall of enough length to screen the restroom and the vending machines from view from the parking area; revegetation of areas disturbed by construction, and placement of a cut stone edged path to connect to existing paths. All work will be within previously disturbed areas. Tree removal will be avoided as much as possible, but it is possible that up to 4 - 6 trees may need to be removed when the existing restroom is demolished, due to their proximity to the existing building. Revegetation efforts will likely be limited to seeding and mulching due to the remoteness of the site for effective shrub and tree maintenance. The restrooms will meet all current accessibility standards and will be Tioga style prefabricated vaults or something similar (Figure 3) with a stucco finish.
- Hopi Point Overlook – The existing chemical toilets near the shuttle bus stop will be removed. A two-stall vault toilet will be installed in the island of the parking area at the overlook. Site work will include a new crushed stone path and new concrete paving. A portion of the existing stone masonry wall will be removed to provide access to the island; minor masonry work will be required. This opening in the wall will be created by the removal of existing stones, which will be incorporated into the adjacent landscape. Up to 2 – 4 small trees may need to be removed. The restroom will meet all current accessibility standards and will be a Tioga or similar style prefabricated vault, possibly with barnwood finish. Nixalite (a deterrent to California condor roosting) will be installed on the roof. Site work will also include a crushed gravel pathway from the restroom to the east side of the island. Siting of the building and design of the adjacent landscape elements will be the subject of consultation between the SHPO, the Park's historical architect and landscape architect.
- South Kaibab Trailhead – The existing chemical toilets near the parking area will be removed. A two-stall vault toilet will be installed in the same general location, slightly further removed from the parking area than the existing toilet, but along the pathway to the trailhead. Site work will include some minor modification to the existing wood fence, removal of some barrier boulders and installation of asphalt walkways. All work will be within previously disturbed areas and no vegetation will need to be removed. The restroom will meet all current accessibility standards and will be a Cascadian style prefabricated vault. Nixalite (a deterrent to California condor roosting) will be installed on the roof.

- Yaki Point – The existing chemical toilet will be removed. A one-stall vault toilet will be installed in essentially the same location, possibly shifted slightly to be somewhat closer to the accessible parking spaces to maximize ease of access and minimize paving. Site work will include asphalt paving and new concrete paving. All work will be within previously disturbed areas and no vegetation will be removed. The restroom will meet all current accessibility standards and will be a Cascadian style prefabricated vault. Nixalite (a deterrent to California condor roosting) will be installed on the roof.
- Shoshone Point – The existing chemical toilets will be removed. A one-stall vault toilet will be installed in essentially the same location; shifted slightly from the existing toilet location to avoid tree removal and to maximize southern exposure. All work will occur within previously disturbed areas. This proposed location is within the boundaries of an extensive archeological site that needs to be mitigated as part of this project, as described in the associated Assessment of actions having an Effect on cultural resources Form (AEF). The restroom will meet all current accessibility standards and will be a Cascadian style prefabricated vault. GRCA will, in consultation with SHPO and interested tribes, develop and implement an archeological treatment plan. They will ensure that all the final archeological reports resulting from actions taken at this site will be submitted to the SHPO and affiliated tribes.
- Grandview Trailhead – The existing chemical toilets will be removed. A two-stall vault toilet will be installed in an open area of the island immediately behind the existing chemical toilets. Site work will include concrete paving and some potential tree trimming. Specific site selection will minimize the need for tree removal. The restroom will meet all current accessibility standards and will be a Cascadian style prefabricated vault.
- Buggeln Hill – The existing chemical toilet will be removed. A one-stall vault toilet will be installed in an open area near the parking lot. Site work includes an asphalt path to the parking area and relocation of nearby picnic tables. Although the proposed site is not disturbed, it is in a clearing adjacent to the parking area. No vegetation will be removed. The restroom will meet all current accessibility standards and will be a Cascadian style prefabricated vault.
- Tusayan Museum – The existing chemical toilets will be removed. Two, two-stall vault toilets will be installed in the same general location as the existing toilets. Site work will include new concrete and asphalt paving, drop inlets for drainage, a small dry-laid stone retaining wall, site grading and a curb cut. While the site is essentially disturbed and adjacent to the existing toilets, some vegetation (several shrubs and up to 2 small trees) will need to be removed. The restrooms will meet all current accessibility standards and will be Tioga style prefabricated vaults, with some customization for their proximity to a National Register property. As a precautionary measure, project work at this location will be monitored by an archeologist meeting the Secretary of Interior's standard for professional archeologists.
- North Kaibab Trailhead – The existing chemical toilet will be removed. A two-stall vault toilet will be installed in the same location in the parking lot island. Site work will include filling in existing accessible parking spaces in the island with soil and designating an existing parking space as accessible, installation of a concrete accessible ramp to the toilet and new concrete curbing and walkways. The restroom will meet all current accessibility standards and will be a Cascadian style prefabricated vault. Nixalite (a deterrent to California condor roosting) will be installed on the roof. A second option for location of the

vault toilet may be considered; a site just north and east of the parking lot island, at the edge of the parking area. Use of this alternate area may result in the restroom being somewhat less prominent in the view from the parking area entrance. The specific location of the restroom will be selected in consultation with a landscape architect.

- Widforss Trailhead – The existing chemical toilet will be removed. A one-stall vault toilet will be installed at the end of the existing gravel parking area. Site work will include a concrete pad at the vault toilet entrance and placement of several boulders to provide a separation between parking and toilet areas. All work will be within previously disturbed areas, or directly adjacent to disturbed sites, and no vegetation will be removed. The restroom will meet all current accessibility standards and will be a Cascadian style prefabricated vault. This location is approximately ¼ mile from an archeological site excavated in the 1980's. As a precautionary measure, project work at this location will be monitored by an archeologist meeting the Secretary Interior's standards for professional archeologists.

III. Construction of New Toilets

Yaki Picnic Area – This existing picnic area along East Rim Drive currently has no restroom. A one-stall vault toilet will be installed adjacent to the parking area in a small clearing. Site work will include a concrete pad at the vault toilet entrance. No vegetation will be removed for this project. The restroom will meet all current accessibility standards and will be a Cascadian style prefabricated vault. Vault toilet type, style, installation and maintenance for this new toilet are as described under Alternative B, Section II.

Three Mile – This site along the Bright Angel Trail has an historic rest house and a place to get water, but no restroom facility. A three-stall composting toilet will be installed approximately 30 – 40 yards east of the rest house in an area once used as a borrow pit. The site is heavily disturbed and currently used as a storage area for trail maintenance supplies and materials. This proposed location is adjacent to an archeological site that will be mitigated as part of this project, as described in the associated Assessment of actions having an effect on cultural resources Form (AEF). The composting toilet will either be prefabricated off site, or built on site (or a combination of the two). This will be determined during later design phases for the project. An evaporator will be necessary for the toilet and will be incorporated into the design. An evaporator will require a battery-powered fan or small pump. Nixalite (a deterrent to California condor roosting) will be installed on the roof. There is an existing social trail from the rest house to the proposed toilet location that will be slightly improved and used for access. Prior to any ground disturbance that may affect culturally significant resources, the Park will, in consultation with the SHPO and interested tribes, develop a draft archeological treatment plan, which is to be reviewed by the SHPO and interested tribes within a 30-day review and comment period.

An emergency helicopter landing area is located nearby (within approximately 100 yards) and is occasionally used for emergency medical evacuations and other emergency access in this remote area. Construction of this composting toilet in the site proposed will be implemented with the following integral mitigation measures to minimize the potential for safety concerns:

- The site plan developed for this new restroom will carefully consider the proximity of this landing area and will incorporate design features and/or other actions that will minimize safety conflicts between visitors and helicopters when this landing area is in use. NPS resource specialists (including the Inner Canyon Restoration Biologist), backcountry

rangers, maintenance personnel and helicopter operations personnel will jointly develop this plan. Actions may include a Superintendent's closure order for the area east of the toilet near the landing area, additional signage, fencing or gating in certain areas, and/or construction of a masonry wall (appropriate for the site) to discourage visitors from entering the emergency landing area.

Type and style –A Phoenix composting toilet will be installed at Three Mile. This system is currently in use along the Bright Angel trail at Mile and a Half, at Cedar Ridge on the South Kaibab and at Hermit Campground along the Hermit Trail. The composting toilet proposed for Three Mile will look similar to the one at Mile and a Half but will be slightly smaller. The three-stall composter constructed at Three Mile will be approximately 20 feet tall, 20 feet long and 10 feet wide. While some prefabrication of materials may be considered for this restroom to minimize cost, the structure will have an overall custom design utilizing native stone and other materials appropriate for its location. Design of the building is being addressed in the AEF for this project, evaluating the potential for impacts to cultural resources, including historic structures. The ultimate design of the building will be developed in consultation with the State Historic Preservation Officer.

Construction – Up to approximately 15 – 20 helicopter flights to Three Mile will be necessary to fly in materials for the construction, but will be minimized as much as possible through the use of mules or backpacking. All labor personnel will hike in to the project site and mules will be used to pack in any materials that were small enough for this type of transport (examples include mortar, hand tools, water, etc.) Construction may take up to 9 – 12 months to fully complete, due to the remoteness of the site, availability of work crews and time involved in gathering stone and other materials (sand for mortar, etc.) necessary for construction. Staging during construction will occur on existing disturbed areas near project sites.

Maintenance – Due to the limited staffing of the current inner canyon toilet maintenance program, helicopters will be required to periodically empty compost from this Three Mile toilet annually. It is estimated that up to 4 flights/year will be required to meet the demand. However, as also described in the mitigation measures below, mules will be used instead of helicopters for this periodic compost removal if additional staff is added to the maintenance program. If additional staff is added and mules can be used for this annual compost removal, the waste will be transported to the South Rim for disposal, as is currently done for the composting toilet at Mile and a Half. This will take approximately 5 days with 10 mules and 2 riders per year. Cyclic maintenance will occur weekly (perhaps up to 3 times per week during the busiest season) and will be conducted by personnel accessing the sites via foot or mule. Cyclic maintenance activities will include such things as adding enzymes to the toilet, stirring, site work, site cleanup and obliteration of social trailing as needed.

Pipe Creek - This site along the Bright Angel Trail has an historic rest house, but no toilet and no potable water source. The site at one time had a drinking fountain with water from the creek, but has since been disconnected. A one-stall composting toilet, similar to that in use at Hermit Campground, will be constructed near the existing mule hitching rail, west of Pipe Creek. The exact location of the toilet will be determined by a design team (see mitigation measure below) to minimize potential impacts to the rest house and to the nearby riparian zone along Pipe Creek. Due to the limitations of the site (rockiness and the adjacent creek) options are limited, but it will likely be constructed along the rocky slope between the rest house and the creek, at least 40 feet from the rest house and tucked into the hillside. The area is an existing disturbed area and very rocky, so vegetation disturbance will be minimized. No riparian vegetation will be removed for toilet installation. The hitching rail may need to be relocated. If so, this will be done in consultation with the park's hydrologist to select the most appropriate new location for this use.

An evaporator will be necessary for the toilet and will be incorporated into the design. The evaporator will require a battery-powered fan or small pump, or a tie-in with the existing power line along the pipeline. Nixalite (a deterrent to California condor roosting) will be installed on the roof.

Potable water will be installed on site to provide hikers and mule riders with drinking water. This will be achieved with a connection to the transcanyon pipeline, requiring approximately 200 yards of piping from an existing valve box to the rest house. Approximately 80 yards of this distance will be exposed pipe (likely $\frac{3}{4}$ inch black pipe, or something similar) on rock faces or along the ground until the pipe could be safely buried. The trenching necessary for installation of this new pipe will be done using hand tools and/or small mechanized equipment such as a punjar or ditching tool. The park's Inner Canyon vegetation program manager and the park's hydrologist will be consulted on the specific layout of new piping and trenching necessary for the waterline to minimize vegetation disturbance and potential impacts to Pipe Creek.

The Cross Canyon Corridor Historic District includes Bright Angel Trail and its associated trailside shelters. Pipe Creek rest house is one of these historic shelters. The rest house and the nearby Bright Angel Trail are considered significant historic resources. For this reason, a mitigation measure has been developed to minimize the potential for adverse impacts to this area. In addition, the toilet's proximity to the creek needs to be taken into consideration when selecting the placement of the toilet, the building design and the choice of materials selected. The park hydrologist will conduct an evaluation of the site prior to construction. This measure is included in the mitigation measures listed below, but also repeated here:

- The selection of the specific location and building design for the Pipe Creek toilet will be carefully considered to ensure that the structure is appropriate for its location near Pipe Creek, is subordinate to the nearby historic rest house, doesn't compete with the rest house, and is compatible with the views from the Bright Angel Trail. A design team including a landscape architect, cultural resource specialist, backcountry trails and toilet maintenance representative, park hydrologist, and other park staff, as appropriate, will consider and evaluate options for location and design at the project site, prior to construction. The toilet will only be constructed if the above measures are met and the team agrees that the structure will be appropriate for its location near the creek and will not dominate the cultural landscape. The specific site plan and design drawings will be developed in consultation with the SHPO and the park hydrologist.

Type and style – A Phoenix composting toilet will be installed. This system is currently in use along the Bright Angel trail at Mile and a Half, at Cedar Ridge on the South Kaibab, at Tip-off and Sepia Tunnel on the North Kaibab Trail, and at Hermit Campground along the Hermit Trail. The one-stall composting toilet will be similar in size to the one at Hermit Campground. A one-stall composter will be approximately 15 feet tall, 10 feet long and 12 feet wide. The toilet will be custom-designed and custom-built using native stone and other materials appropriate for its adjacency to the historic rest house. Design of the building will be as described above.

Construction – Up to approximately 7 – 10 helicopter flights will be necessary to fly in materials necessary for the construction, but will be minimized as much as possible through the use of mules, boats or backpacking. All labor personnel will hike from the South Rim or boat in to the project site. Mules will be used to pack in any materials that are small enough for this type of transport (examples include mortar, hand tools, water, etc.). Due to the site's proximity to the river, the feasibility of boat transport of materials will be carefully considered as an alternative to helicopter flights. Construction

may take up to 9 – 12 months to fully complete, due to the remoteness of the site, availability of work crews and time involved in gathering stone and other materials (sand for mortar, etc.) necessary for construction. Staging during construction will either occur at Phantom Ranch or on existing disturbed areas near the project site.

Maintenance – Due to the limited staffing of the current inner canyon toilet maintenance program, helicopters will be required to periodically empty compost from this toilet annually. It is estimated that up to 4 flights/year will be required to meet the demand. However, as also described in the mitigation measures at the end of this chapter, mules will be used instead of helicopters for this periodic compost removal if additional staff is added to the maintenance program. If additional staff is added and mules can be used for this annual compost removal, the waste will be transported to the South Rim for disposal, as is currently done for the composting toilet at Mile and a Half. This will take approximately 7 days with 10 mules and 2 riders per year. Cyclic maintenance will occur periodically (weekly or several times a week during the busiest season) and will be conducted by personnel accessing the sites via foot, mule and/or previously scheduled river transport. Cyclic maintenance activities will include such things as adding enzymes to the toilet, stirring, site work and site cleanup.

Mitigation Measures

The mitigation measures listed below are considered part of the preferred alternative and will be followed during project implementation. These actions were developed to lessen the potential for adverse impacts from implementing the preferred alternative, and have proven to be effective in reducing environmental impacts on previous projects.

Contractor Orientation. Contractors working in the Park are given orientation concerning proper conduct of operations. This orientation is provided in both written form and verbally at a preconstruction meeting. This policy will continue on proposed projects. Orientation topics will include, but not be limited to:

- Wildlife should not be approached or fed.
- Collecting any Park resources, including plants, animals, and historic or prehistoric materials, is prohibited.
- Contractor must have a safety policy and a vehicle fuel and leakage policy in place.
- For inner canyon sites, contractor must have a project manager and laborers that are able to hike in to project locations.
- Other environmental concerns and requirements discussed in the EA will be addressed, including relevant mitigation measures listed below.

Limitation of Area Affected. The following mitigation measures will be implemented to minimize the area affected by construction activities.

- The staging areas for the construction office (a trailer), construction equipment, and material storage will either be located in previously disturbed areas near project sites or in other disturbed areas that best meet the needs of the project and minimizes new ground disturbance. All staging areas will be returned to pre-construction conditions once construction is complete. Standards for this, and methods for determining when the standards are met, will be developed in consultation with the Park Restoration Biologist.
- Construction zones will be fenced with construction tape, snow fencing, or some similar material before any construction activity. The fencing will define the construction zone and confine activity to the minimum area required for construction. All protection measures will be clearly stated in the construction specifications, and workers will be instructed to avoid

conducting activities beyond the construction zone as defined by the construction zone fencing.

Soil Erosion. To minimize soil erosion, the following mitigation measures will be incorporated into the action alternatives.

- Standard erosion control measures such as silt fences, sand bags, or equivalent control methods will be used to minimize any potential soil erosion.
- Any trenching operations will be by rock saw, backhoe, track hoe, punjar, ditch digger and/or trencher, with excavated material side-cast for storage. After trenching is complete, bedding material will be placed and compacted in the bottom of the trench and the utility lines installed in the bedding material. Back filling and compaction will begin immediately after the utility lines are placed into the trench, and the trench surface will be returned to pre-construction contours. All trenching restoration operations will follow guidelines approved by Park staff. Compacted soils will be scarified and original contours reestablished.
- A Salvage and Revegetation Plan will be developed for the project by a landscape architect or other qualified individual, in coordination with the Park Restoration Biologist. Any revegetation efforts will use site-adapted native species and/or native seed, and Park policies regarding revegetation and site restoration will be incorporated into the plan. The plan will consider, among other things, the use of native species, plant salvage potential, exotic vegetation and noxious weeds, and pedestrian barriers. Policy related to revegetation will be referenced in NPS Management Policies (NPS 2001b; Chapter 9).

Vegetation. To minimize impacts to vegetation and to prevent the introduction and minimize the spread of exotic vegetation and noxious weeds, the following mitigation measures will be incorporated into the action alternatives.

- Inventories for existing populations of exotic vegetation at construction sites will occur and any populations found will be treated prior to construction activities. For the inner-canyon sites (Three Mile and Pipe Creek) this inventory will occur concurrently with the inventory for special status plant species.
- A restoration biologist will provide input on salvage potential and tree avoidance at project sites where necessary. A restoration biologist will also spot-check the work progress, particularly at Three Mile and Pipe Creek, for adherence to mitigation measures related to vegetation.
- The park inner canyon vegetation program manager and the park hydrologist will be consulted on the specific layout of new piping and trenching necessary for the proposed waterline at Pipe Creek, to minimize vegetation disturbance and potential impacts to the riparian zone. The park hydrologist will be consulted prior to the potential relocation of the hitching rail at Pipe Creek.
- All construction equipment that will leave the road (e.g., bulldozers and backhoes) will be pressure washed prior to entering the Park.
- The location of the staging areas for construction equipment will be Park-approved and the needs for treating exotic vegetation will be considered.
- Parking of vehicles will be limited to existing roads or the staging area.
- Pruning necessary for this project and for any future periodic maintenance adjacent to any restrooms will adhere to the Park's tree pruning guidelines with the goal of retaining the health and integrity of the trees and shrubs treated.
- Any fill, rock, or additional topsoil needed will be obtained from a Park-approved source.

- All areas disturbed by construction will be revegetated using site-adapted native seed and/or plants.

Water Quality and Floodplains. To minimize potential impacts to water quality, the following mitigation measures will be incorporated into the action alternatives.

- The need for a storm water pollution prevention plan (SWPPP) will be evaluated, and prepared by the contractor, if necessary. This plan will be approved by the Park prior to any ground-disturbing activities. All National Pollutant Discharge Elimination System (NPDES) requirements will be met.
- Standard erosion control measures such as silt fences, sand bags, or equivalent control methods will be used to minimize any potential sediment delivery to streams.
- Type 4 general permits will be applied for with the Arizona Department of Environmental Quality for both underground vault toilets and composting toilets included in the action alternatives. A General Permit Type 4.14 is required for vault toilet installation and a General Permit Type 4.03 is required for composting toilet installation. These permits will be approved by ADEQ prior to construction.
- The park hydrologist will conduct an on-site evaluation and floodplain assessment at Pipe Creek prior to construction. As described in the mitigation measure under cultural resources (and as also described under the alternatives section of this chapter), the park hydrologist will be an integral member of the design team formed to evaluate the specific placement, building design and building materials chosen for the proposed toilet at Pipe Creek.

Special Status Species. To protect any unknown or undiscovered threatened, endangered, or special status species, the construction contract will include provisions for the discovery of such. These provisions will require the cessation of construction activities until Park staff evaluates the project impact on the discovery and will allow modification of the contract for any protection measures determined necessary to protect the discovery. Mitigation measures for known special status species are as follows:

California Condor

- Prior to the start of a construction project, the Park will contact personnel monitoring California condor locations and movement within the Park to determine the locations and status of condors in or near the project area.
- If a condor occurs at the construction site, construction will cease until it leaves on its own or until permitted personnel employ techniques that result in the individual condor leaving the area.
- Construction workers and supervisors will be instructed to avoid interaction with condors and to contact the appropriate Park or Peregrine Fund personnel immediately if and when condor(s) occur at a construction site.
- The construction site will be cleaned up at the end of each day that work is being conducted (i.e., trash disposed of, scrap materials picked up) to minimize the likelihood of condors visiting the site. Park condor staff will complete a site visit to the area to ensure adequate clean-up measures are taken.
- To prevent water contamination and potential poisoning of condors, the park-approved vehicle fluid-leakage and spill plan will be adhered to for this project. This plan will be reviewed by the Park biologist for adequacy in addressing condors for this project.
- If a new structure occurs on the rim or above tree line in other areas, there may be a need to install condor deterrent devices, such as Nixalite, on the structure. This will be evaluated on a case-by-case basis by the Park wildlife biologist.

- New construction will limit the use of “soft” and/or colorful construction materials on roofs and along building foundations to minimize the possibility of condors becoming attracted to the building. An example of this type of material includes rubber weather-stripping which condors can pull off and ingest.
- If non-nesting condors occur within 1 mile of the project area, blasting will be postponed until condors leave or are hazed by permitted personnel.
- If condor nesting activity is known within 1 mile of the project area, then blasting activity will be restricted during the active nesting season, if viable nests persist. The active nesting season is February 1 to October 15, or until young are fully fledged. These dates may be modified based on the most current information, in consultation with the Park biologist and the USFWS.
- If condor nesting activity is known within 0.5 mile of the project area, then light and heavy construction in the project area will be restricted during the active nesting season, if viable nests persist. The active nesting season is February 1 to October 15, or until young are fully fledged. These dates may be modified based on the most current information, in consultation with the Park biologist and the USFWS.
- Helicopter flights necessary for construction at Three Mile and Pipe Creek will be evaluated for their potential impact to active nesting areas for condors in the inner canyon. Flight paths could potentially be altered so that they will not be flying within or near an active nesting area. If this is not possible, these flights will be restricted during the active nesting season, if viable nests persist. The active nesting season is February 1 to October 15, or until young are fully fledged. These dates may be modified based on the most current information, in consultation with the Park biologist and the USFWS.

Mexican Spotted Owl (MSO)

- If a construction project occurs within a Protected Activity Center (PAC) with no known nest site, then all construction activity will be restricted to the non-breeding season (September 1 – February 28). However, if the project in a PAC is at least 0.8 km (0.5 mile) from known nest sites and the project does not include blasting, then the project can be implemented during the breeding season. The breeding season is March 1 – August 31. As of February 2005, this applies to Shoshone Pt and Buggeln Hill.
- If a construction project outside of PACs occurs within 1.6 km (1 mile) of a known PAC nest or roost site, the boundary of a PAC where the nest or roost site is not known, or unsurveyed restricted, protected, or predicted MSO habitat, then all blasting in that project area will be restricted to the non-breeding season (September 1 – February 28). Blasting may be necessary for vault excavation at some sites. The park wildlife biologist will be consulted for the latest information on PACs within this 1 mile distance.
- If a construction project outside of PACs occurs within 0.8 km (0.5 mile) of a known PAC nest or roost site, the boundary of a PAC where the nest or roost site is not known, or unsurveyed restricted, protected, or predicted MSO habitat, then light and heavy construction activity in that project area will be restricted to the non-breeding season (September 1 – February 28). As of February 2005, this applies to Hermits Rest, South Kaibab Trailhead, Yaki Point, Yaki Picnic Area, and Grandview. While PACs occur within 0.5 miles of Desert View Campground and Indian Garden, the work at these sites classifies as interior/exterior rehabilitation (not construction) and will not require a breeding season restriction (NPS 2002 and USFWS 2002).
- Helicopter flights necessary for construction at Three Mile and Pipe Creek will be evaluated for their potential impact to MSO PACs in the inner canyon. Flights could come in from the north and avoid flying over designated PACs during the breeding season. If this is not

possible, these flights will be restricted to the non-breeding season (September 1 – February 28).

Zone-tailed Hawk

- Occupancy of the territory near Grandview Trailhead will be confirmed by the park biologist prior to construction. If occupied, the park biologist will determine if any breeding season restriction on construction activities will be necessary.

Niobrara Ambersnail

- If ground-disturbing site work is identified at Indian Garden during later design phases for this project, known and potential ambersnail habitat will be identified and flagged by a NPS biologist prior to the commencement of this site work and the area will be avoided. Measures will be taken to assure that no surface disturbance or sedimentation will occur in Niobrara ambersnail habitat at Indian Garden.

Grand Canyon Catchfly

- Surveys for this species will be conducted at Three Mile and Pipe Creek prior to project implementation to confirm its presence/absence. For both sites combined, this will require approximately one day for one person from the vegetation program management division. If individuals of this species are located in or near proposed project areas, protective measures will be implemented, in consultation with the Park's Inner Canyon Vegetation Program Manager.

Soundscapes and Wilderness. To minimize the impacts of construction activities on soundscapes and wilderness, the following mitigation measures will be incorporated into the action alternatives.

- A minimum requirements analysis (MRA) has been conducted for proposed methods used to construct and maintain proposed toilets at Three Mile, Pipe Creek, Indian Garden, Phantom Ranch, Bright Angel Campground and Widforss Trailhead (EA, Appendix F). While none of these sites are located within the boundaries of recommended wilderness, methods used to transport materials into these sites have the potential to impact adjacent recommended wilderness. The minimum tool determined necessary for these actions through the MRA process, as documented in the EA, forms the basis for the selection of transport method for each of these sites.

Cultural Resources. To minimize the impacts of construction activities on cultural resources, the following mitigation measures will be incorporated into the action alternatives.

- All stipulations outlined in the Memorandum of Agreement between the park and the State Historic Preservation Officer (signed 11 April 2005) will be adhered to for this project. This MOA is incorporated into this document by reference.
- If previously unknown archeological resources are discovered during the course of the project, a park archeologist will be contacted immediately. All work in the immediate vicinity of the discovery will be halted until the resources can be identified and documented and an appropriate mitigation strategy developed, if necessary, in accordance with the stipulations of the 1995 Programmatic Agreement among the National Park Service, the Arizona State Historic Preservation Officer, and the Advisory Council on Historic Preservation regarding the General Management Plan/Environmental Impact Statement, Grand Canyon National Park, Arizona.

- All workers will be informed of the penalties of illegally collecting artifacts or intentionally damaging any archeological or historic property. Workers will also be informed of the correct procedures if previously unknown resources were uncovered during construction activities.
- Monitoring of the construction at Tusayan Museum and at Widforss Trailhead will be undertaken by a qualified archeologist, due to the proximity of documented archeological sites in these areas
- The specific components necessary for the rehabilitation of the Yavapai Observation Station comfort station, a Mission 66 building, and the resulting appearance of the building will be developed more fully among NPS staff during the design phases of this project. This group will evaluate and consider the comments previously received from the SHPO and determine the applicability of the Secretary of the Interior's Standards for the Treatment of Historic Properties, park architectural guidelines, and existing management policies, while also addressing the purpose and need for action. The restroom occurs near Yavapai Observation Station, a National Historic Landmark (NHL) building. While the restroom is located outside the NHL boundary, the proximity of this restroom to this significant building will be considered during design.
- The specific components necessary for the rehabilitation or installation of comfort stations in the cross-canyon corridor (Three Mile, Indian Garden, Phantom Ranch, Bright Angel Campground, [Pipe Creek is discussed separately below]) and others areas with cultural landscapes and/or that are adjacent to historic structures (Hopi Point, Hermits Rest, Tusayan Museum) and their resulting appearance will be developed more fully among NPS staff during the design phases for this project. This group will evaluate and consider comments from the Arizona State Historic Preservation Office, the Secretary of the Interior's Standards for the Treatment of Historic Properties, park architectural guidelines, and existing management policies. The selection of roof color and exterior facades will be carefully considered and will follow guidelines described in the associated AEF for this project.
- Archeological sites occur at the proposed location for the Three Mile and Shoshone Point restrooms and will be mitigated as part of this project. A mitigation/data recovery plan for each site has been developed in consultation with the SHPO and affiliated Native American groups.
- The selection of the specific location and building design for the Pipe Creek toilet will be carefully considered to ensure that the structure is appropriate for its location near Pipe Creek, is subordinate to the nearby historic rest house, doesn't compete with the rest house, and is compatible with the views from the Bright Angel Trail. A design team including a landscape architect, cultural resource specialist, backcountry trails and toilet maintenance representative, park hydrologist, and other park staff, as appropriate, will consider and evaluate options for location and design at the project site, prior to construction. The toilet will only be constructed if the above measures are met and the team agrees that the structure will be appropriate for its location near the creek and will not dominate the cultural landscape. The specific site plan and design drawings will be developed in consultation with the SHPO and the park hydrologist.

Visual Resources. To minimize visual impacts, mitigation measures will include the following:

- Natural, muted colors, that replicate existing location hues, will be used to blend any built materials into the landscape.
- Restroom structures will be sited so that they do not compete with views and vistas and are incorporated into the surrounding landscape.

Visitor Experience. The following mitigation measures will be incorporated into the action alternatives to minimize the impacts of construction activities on the visitor experience:

- Construction activities will be restricted during peak use days such as holidays and some weekends during the busiest times of the year to minimize disruption to visitors.
- Traffic in any one direction will not be stopped for more than 15 minutes to minimize disruption to traffic flow.
- Unless otherwise approved by the Park, operation of heavy construction equipment and helicopters will be restricted to 8:00 am to 6:00 pm in the summer (May 1- September 30) and to 9:00 am to 5:00 pm during the rest of the year.
- The Yavapai restroom will be closed during rehabilitation but this closure may correspond with the closure of the observation station during its rehabilitation. Portable chemical toilets will be supplied at Desert View campground and Hermits Rest during construction.
- As time and funding allows, information regarding implementation of this project and other foreseeable future projects will be shared with the public upon their entry into the park during construction periods. This may take the form of an informational brochure or flyer about the projects distributed at the gate and sent to those with reservations at park facilities, postings on the park's website, press releases, and/or other methods. The purpose of these efforts will be to minimize the potential for negative impacts to the visitor experience during implementation of this project and other planned projects during the same construction season.
- Information regarding construction of the toilets at Pipe Creek and Three Mile and the purpose for the project will be distributed to visitors at the corridor trailheads.

Park Operations and Safety. The following mitigation measures will be incorporated into the action alternatives to minimize the impacts of proposed activities on park operations and to minimize safety risks to employees and visitors:

- The site plan developed for the proposed toilet at Three Mile along the Bright Angel Trail will carefully consider the proximity of the emergency helicopter landing area and will incorporate design features and/or other actions that will minimize safety conflicts between visitors and helicopters when this landing area is in use. NPS resource specialists, maintenance personnel and helicopter operations personnel will jointly develop this plan. Actions may include a Superintendent's closure order for the area east of the toilet near the landing area, additional signage, fencing or gating in certain areas, or construction of a masonry wall (appropriate for the site) to discourage visitors from entering the emergency landing area.
- Due to the limited staffing of the current inner canyon toilet maintenance program, helicopters will be used to periodically empty compost from the proposed toilets at Three Mile and Pipe Creek annually. Mules will be used instead of helicopters for this periodic compost removal IF additional staff is added to the maintenance program. If additional staff is added and mules can be used for this annual compost removal, the waste will be transported to the South Rim for disposal, as is currently done for the composting toilet at Mile and a Half.

Air Quality. Air quality impacts of the action alternatives are expected to be temporary and localized. To minimize these impacts, the following actions will be taken:

- To reduce entrainment of fine particles from hauling material, sufficient freeboard will be maintained and loose material loads (aggregate, soils, etc.) will be tarped.

- To reduce tailpipe emissions, construction equipment will not be left idling any longer than is necessary for safety and mechanical reasons.
- To reduce construction dust in the short term, water will be applied to problem areas. Equipment will be limited to the fenced project area to minimize soil disturbance and consequent dust generation.
- Landscaping and revegetation will control long-term soil dust production. Mulch and the plants themselves will stabilize the soil and reduce wind speed/shear against the ground surface.

ALTERNATIVES CONSIDERED

The EA evaluated three alternatives in detail for addressing the purpose and need for action; the no action alternative, the preferred alternative, and one additional action alternative. The preferred alternative is as described previously in this document in detail.

Alternative A – No Action Alternative: Under the no action alternative, no improvements will be made at the 18 sites included in this proposal. Existing comfort stations at Hermits Rest, Yavapai Observation Station, Desert View campground, Phantom Ranch, Bright Angel Campground and Indian Garden will not be rehabilitated. Temporary chemical toilets in use at Hopi Point Overlook, South Kaibab Trailhead, Yaki Point, Shoshone Point, Grandview Trailhead, Buggeln Hill picnic area, Tusayan Museum, North Kaibab Trailhead and Widforss Trailhead will not be replaced with larger capacity vault toilets. No toilet will be installed at Three Mile, Pipe Creek or Yaki Point picnic area. No potable water source will be developed at Pipe Creek. Table 3 includes the sites, their location and their existing condition, which will remain under implementation of the no action alternative. These restrooms will continue to provide substandard facilities for park visitors and require frequent maintenance.

The No Action alternative provides a basis for comparing the management direction and environmental consequences of the other action alternatives. If the no action alternative were selected, NPS will respond to future needs related to restrooms without major actions or changes in course.

Alternative C – Minimized Structure at Three Mile

This alternative is the same as the preferred alternative except for the restroom proposal at Three Mile along the Bright Angel Trail. Alternative C proposes a smaller and more compact structure at Three Mile, constructed at the same location as that proposed under Alternative B. Because Three Mile is a remote location and adjacent to proposed wilderness, Alternative C was developed as an option that would minimize the footprint of a new structure, the amount of construction materials necessary, and the type of equipment and transport necessary over proposed wilderness.

Alternative C includes installing a smaller two-stall composting toilet at Three Mile, that would result in less overall footprint and fewer materials. The composting toilet would be approximately two-thirds the size of the one described in Alternative B. The proposed structure would be approximately 15 feet in height, 15 feet long and 8 feet wide. Approximately 10 – 15 helicopter flights would be necessary for transport of construction materials to the site, and approximately 8 flights/year would be required for maintenance.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969 (NEPA), which guides the Council on Environmental Quality (CEQ). The CEQ provides direction that “[t]he environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA’s Section 101:

1. fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
3. attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
5. achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Through the process of internal scoping and scoping with the public and other agencies, the environmentally preferred alternative selected is Alternative B. Alternative B best meets the purpose and need for action and best addresses overall Park Service objectives and evaluation factors. Alternative B will result in only minimal new ground disturbance and vegetation removal and meets the purpose and need for action. The primary difference between Alternative B and C is in the slightly smaller footprint of disturbance under Alternative C and the reduced number of one-time flights into the inner canyon during the construction period. While Alternative C achieves some of the criteria above, it does not adequately plan for the quality of the visitor experience over the long-term since the capacity of the structure will be too small for future demand. This will result in more long-term recurring maintenance needs (with the likelihood of an increased number of annual helicopter flights), which does not fully achieve criteria 3, 5 or 6. Alternative B better meets these criteria. No new information came forward from public scoping or consultation with other agencies to necessitate the development of any new alternatives, other than those described and evaluated in this document. Alternative B is recommended as the Preferred Alternative and meets both the Purpose and Need and the project objectives.

WHY THE PREFERRED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT

As defined in 40 CFR §1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse. As fully discussed in the EA, the preferred alternative will not affect soils and water, vegetation, general wildlife populations or species of interest, air quality, floodplains and wetlands, prime and unique farmland, environmental justice or the socioeconomic environment.

Implementation of the preferred alternative will result in negligible to minor adverse, short-term impacts to Mexican spotted owl, California condor and bald eagle due to increased noise during construction. Implementation of the preferred alternative will result in negligible to minor, adverse short-term impacts to Northern goshawk, Niobrara ambersnail, and Grand Canyon catchfly due to increased noise (for goshawk) and disturbance of habitat (ambersnail and catchfly) but will not result in a trend toward federal listing or a loss of population viability.

Implementation of the preferred alternative will result in moderate, adverse short-term impacts to proposed wilderness in the vicinity of Widforss Trailhead, Three Mile and Pipe Creek due to construction-related disturbance, and moderate adverse impacts due to annual maintenance needs using helicopters, until park staff is increased to allow mules to be used for maintenance at Three Mile and Pipe Creek.

Implementation of the preferred alternative will result in moderate, adverse short-term impacts to soundscape due to construction noise and proposed helicopter flights in the Bright Angel Flight Free Zone. Over the long-term, impacts will be adverse, minor and localized.

Implementation of the preferred alternative will result in minor to moderate, adverse short-term impacts to visitor experience during construction. These short-term impacts will be outweighed by the long-term moderate beneficial impacts of improved restroom facilities of adequate capacity and access to potable water at Pipe Creek.

Implementation of the preferred alternative will result in minor to moderate, adverse short-term impacts to park operations, specifically the inner canyon maintenance program, due to addition of two new toilets without the addition of staff to adequately maintain them. Moderate long-term beneficial impacts will result from substantially fewer maintenance trips to restrooms overall.

Implementation of the preferred alternative will result in minor to moderate, adverse, short- and long-term impacts to cultural resources due to disturbance of archeological sites, stone curbing and masonry walls, and construction in areas of concern to affiliated tribes, minimized through mitigation; and minor long-term beneficial impacts to historic resources due to replacement of incompatible structures with more appropriate ones.

Degree of effect on public health or safety. Adherence to mitigation measures designed to minimize safety risks and adverse impacts to visitors during the construction period will address these limited risks to public safety. Moderate, beneficial, long-term impacts to visitors are expected due to improved restroom facilities of adequate capacity and access to potable water at Pipe Creek. Installing water at Pipe Creek will directly benefit visitors who often reach this area without adequate water and risk dehydration.

Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. As fully discussed in the EA, the preferred alternative will not affect soils and water, vegetation, general wildlife populations or species of interest, air quality, floodplains and wetlands, prime and unique farmland, environmental justice or the socioeconomic environment. No wild and scenic rivers are designated near the project area and none will be affected by implementation of the preferred alternative. No ecologically critical areas occur within the project area and only minimal disturbance to the surrounding vegetation will occur. Cultural resources do occur in proximity to the project and moderate adverse impacts would result from implementation of the preferred alternative, minimized through mitigation.

Degree to which effects on the quality of the human environment are likely to be highly controversial. There were no highly controversial effects identified during either preparation of the EA or the public review period.

Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks. There were no highly uncertain, unique or unknown risks identified in the EA or during the public review period.

Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. The preferred alternative neither establishes a precedent for future actions with significant effect nor represents a decision in principle about a future consideration.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Implementation of the preferred alternative will not result in any significant cumulative impacts.

Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. No structures proposed for rehabilitation are historic, although construction of new restrooms in some areas has the potential to impact surrounding cultural landscapes (Three Mile, Indian Garden, Phantom Ranch, Bright Angel Campground, Pipe Creek) or nearby historic structures (Hermits Rest, Yavapai Observation Station, and Tusayan Museum) and measures have been developed to minimize impacts to these resources. These more sensitive locations have been carefully considered throughout the planning process for this project.

Most project areas have had previous archeological survey and the potential for impacts to archeological sites is negligible, with the exception of two sites (Three Mile and Shoshone Point) where confirmed archeological sites occur and where data recovery prior to project implementation will be required. Moderate adverse long-term impacts to archeological resources (as defined through NEPA) will occur as a result of this project, minimized through mitigation. Two other project sites (Widforss Trailhead and Tusayan Museum) will require monitoring during construction. An archeological treatment plan has been prepared for this project (NPS 2005b) and is currently being reviewed by SHPO and concerned tribal officials.

Full documentation of the assessment of actions having an effect on cultural resources, the Assessment of Effects form (AEF), has been prepared separately for this project (NPS 2005a), to facilitate the preparation of a Memorandum of Agreement (MOA) with the SHPO. After applying the Advisory Council on Historic Preservation's criteria for adverse effects (36 CFR, Part 800.5, Assessment of Adverse Effects), the National Park Service determines that implementation of the Construction, Rehabilitation and Repair of Restrooms Parkwide will have an adverse effect on identified historic properties, but that this adverse effect will be minimized and mitigated through actions agreed upon in the Memorandum of Agreement between the SHPO and the park. This MOA was signed by the Park Superintendent on 31 January 2005 and by the State Historic Preservation Officer on 11 April 2005. All stipulations identified in the MOA have been incorporated into the project and are referenced in the mitigation measures section of this document.

Tribal review of the EA and of the MOA is complete.

Degree to which the action may adversely affect an endangered or threatened species or its critical habitat. For purposes of Section 7 consultation under the Endangered Species Act, implementation of the preferred alternative may affect, but is not likely to adversely affect, the Mexican spotted owl, California condor or bald eagle. Concurrence on this determination was received from the U.S. Fish and Wildlife Service on 9 July 2002, as part of a batch consultation on multiple construction projects in the park, and on 8 October 2004 for Yaki Picnic Area and Pipe Creek. Implementation of the preferred alternative may affect individual peregrine falcons, but will not result in a trend toward federal listing or a loss of population viability. Concurrence on this determination was received from the U.S. Fish and Wildlife Service on 9 July 2002, as part of the batch consultation.

The California condor was listed as an endangered species in 1967. A nonessential, experimental population of California condors has been established in Northern Arizona, and within Grand Canyon National Park the condor has the full protection of a threatened species. It has been determined by park staff that implementation of the preferred alternative "may affect, but is not likely to adversely affect" the

California condor. This determination is based on the potential that condors could be attracted to the increased activity at the project site during construction. Mitigation measures have been developed jointly between park staff and the U.S. Fish and Wildlife Service (FWS) to minimize the potential for adverse impacts to the condor during project implementation. These measures are included as part of the proposed action and identified under the preferred alternative. The FWS has been consulted and concurred with the determination that condors may be affected, but are not likely to be adversely affected by the implementation of the preferred alternative.

The Mexican spotted owl (MSO) was listed as a threatened species in 1993 and parts of Grand Canyon National Park were designated as critical habitat in 2001. It has been determined by park staff that implementation of the preferred alternative “may affect, but is not likely to adversely affect” MSO. This determination is based on the fact that some project sites are in close proximity to occupied Protected Activity Centers. Mitigation measures have been developed jointly between park staff and the U.S. Fish and Wildlife Service (FWS) to minimize the potential for adverse impacts to the MSO during project implementation. These measures are included as part of the proposed action and identified under the preferred alternative. The FWS has been consulted and concurred with the determination that MSO may be affected, but are not likely to be adversely affected by implementation of the preferred alternative.

The southwest population of bald eagles was downlisted from Endangered to Threatened status in 1995. Bald eagles are known to occur in the park in the winter, with three sites being identified to date as bald eagle winter roosts. It has been determined by park staff that implementation of the preferred alternative “may affect, but is not likely to adversely affect” bald eagles. This determination is based on the fact that one project site is in close proximity to a winter roost, but that the work involved is not expected to disturb wintering eagles. The FWS has been consulted and concurred with the determination that bald eagles may be affected, but are not likely to be adversely affected by implementation of the preferred alternative.

Whether the action threatens a violation of Federal, state or local environmental protection law. The preferred alternative violates no federal, state, or local environmental protection laws.

IMPAIRMENT OF PARK RESOURCES OR VALUES

In addition to determining the environmental consequences of the preferred and other alternatives, National Park Service policy (*Management Policies*, 2001) requires analysis of potential effects to determine whether or not actions will impair park resources. The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of the park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise.

The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, will harm the integrity of park resources or values, including the opportunities that otherwise will be present for the enjoyment of those resources or values. Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park. An impact to any park resource or value

may constitute impairment. An impact will be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park; or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents.

Because there will be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Grand Canyon National Park; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents, there will be no impairment of Grand Canyon National Park's resources or values as a result of implementation of the preferred alternative.

PUBLIC INVOLVEMENT

The NPS sent a public scoping letter, describing the parkwide restroom rehabilitation proposal, to an approximately 300-person mailing list on 8 December 2000. This letter was also posted on the park's website. Comments in response to the scoping letter were received from the following: United States Fish and Wildlife Service, which provided a species list; the Hopi Tribe offering no specific comment; and one from Nava-Hopi Gray Line Tours agreeing with the need for action.

An additional public scoping letter, describing several projects proposed for the North Rim, including replacement of chemical toilets at the North Kaibab Trailhead and Widforss Trailhead, was submitted to this same park mailing list on November 29, 2000. This letter was also posted on the park's website. Four comments were received including one from the Zuni Heritage and Historic Preservation Office offering no specific comment; one from the National Tour Association offering support for North Rim projects; one from Five County Association of Governments offering support for North Rim projects; and one from the Kaibab Band of Paiute Indians stating that restrooms should be located within disturbed areas, should avoid archeological and other cultural sites and should not be constructed near overlooks.

The Havasupai Tribe was contacted in June 2004 at the request of the park's Chief of Cultural Resources, to discuss the restroom proposals and determine if they might have concerns. The Havasupai had expressed concern previously with a past park project to construct a new restroom along the Bright Angel Trail. The tribe did express concern during phone conversations with the park in June – July 2004 with new construction in the park and wanted further discussion to occur between the park and the tribe. Attempts to set up a meeting with the tribe proved unsuccessful.

The Park Service performed a content analysis on this information, information gained from internal scoping, and information gained from scoping with other agencies. From this effort, the Park Service did not identify any additional significant issues for analysis.

The EA was made available for public review and comment during a 30-day period ending 8 October 2004 through a combination of direct mailing, issuance of a press release and posting on the park's website. Ten responses were received. Four of the responses (Five County Association of Governments, Xanterra Parks and Resorts, Babbitt's Fly Fishing, and a private individual) expressed support for the preferred alternative. Three responses (Hopi Tribe, SHPO, and Arizona Department of Environmental Quality) provided comments related to the process for consultation or permitting and did not directly provide comment on the proposal. The U. S. Fish and Wildlife Service concurred with the park's finding for federally listed species. Two responses (private individual and Kaibab Band of Paiute Indians)

expressed concern with the proposal to construct a new restroom at Three Mile and the Kaibab Band of Paiute Indians also recommended that the park initiate a program for backcountry users to backpack out their own human waste to minimize the need to construct new restrooms in the inner canyon. Substantive comments are addressed in detail in the errata sheet attached to this document.

Consultation between the NPS and the State Historic Preservation Officer (SHPO) on this project is complete. SHPO has been involved in the development of a memorandum of agreement to guide continued implementation of this project and this MOA was signed on 11 April 2005. The archeological treatment plan (NPS 2005b) needed for two archeological sites impacted by the preferred alternative is currently being reviewed by the SHPO.

Consultation between the NPS and tribal groups occurred as part of public scoping, as described above, as part of review of the EA, as described above, and as part of the completion of the MOA to guide cultural resource aspects of the project. All affiliated tribes with an interest in this project were asked if they will like to be a signatory on the MOA. The Hopi Tribe requested a meeting with NPS to discuss the project and this occurred on 17 November 2004. No other tribes responded to the request to be a signatory on the MOA. All affiliated tribes with an interest in this project were also sent a draft of the archeological data recovery plan for Shoshone Point and Three Mile, for their review and comment. This comment period is currently underway. Any comments received from tribal groups will be considered and incorporated into the treatment plan, as appropriate.

CONCLUSION

The preferred alternative does not constitute an action that normally requires preparation of an environmental impact statement (EIS). Negative environmental impacts that could occur are negligible to moderate in effect. There are no unmitigated adverse impacts on public health, public safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places, known ethnographic resources, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, cumulative effects, or elements of precedence were identified. Implementation of the action will not violate any federal, state, or local environmental protection law.

Based on the foregoing, it has been determined that the project does not constitute a major federal action significantly affecting the quality of the human environment and an EIS will not be required for this project and thus will not be prepared.

Recommended:

Jeffrey Cross
Science Center Director, Grand Canyon National Park

Date

Recommended:

Joseph F. Alston
Superintendent, Grand Canyon National Park

Date

Approved:

Michael D. Snyder
Acting Intermountain Regional Director

Date

ERRATA SHEET

Construct, Rehabilitate and Repair Restrooms Parkwide Grand Canyon National Park

The NPS received ten responses to a request for comments on the EA for the Construction, Rehabilitation and Repair of Restrooms Parkwide (September 2004). The comment period ended 8 October 2004. An interdisciplinary team reviewed these responses to identify any substantive comments. Substantive comments were considered to be comments which:

- question, with reasonable basis, the accuracy of information in the EA.
- question, with reasonable basis, the adequacy of environmental analysis.
- present reasonable alternatives other than those presented in the EA.
- cause changes or revisions in the proposal.

Some comments were received that were considered substantive. These comments were reviewed in detail by the project interdisciplinary team. Substantive comments received are summarized below with the NPS response.

***Comment:* The proposed Three Mile restroom, which will mitigate an archeological site, should be reconsidered. An archeological site should not be destroyed to add a restroom.**

Response: The archeological site near the proposed Three Mile composting toilet is highly impacted. This site has received adverse impacts from recreational and administrative use, both historically and in recent times. The Park Archeologist has determined that it is important to examine the features and diagnostic artifacts remaining at this site before the property loses its integrity due to continued disturbance. Data recovery is an appropriate treatment for an archeological site, as provided in guidance documents from the Advisory Council on Historic Preservation. Their treatment depends on their research significance weighed against other public values. As documented in the proposed treatment plan for this project (NPS 2005b), the following justifications for recovering the archeological data from this site and proceeding with restroom construction, include the following:

- The site, while considered eligible for the National Register, is of value chiefly for the information on prehistory it is likely to yield through data recovery.
- The site is not likely to contain human remains, funerary objects, sacred objects, or items of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (25 USC 3001).
- The site does not have long-term preservation value, such as traditional cultural and religious importance to an Indian tribe.
- The site is not known to possess special significance to another ethnic group or community that will object to the site's excavation or removal of its contents.
- The site does not have value for potential permanent public interpretation.

NPS also considered other locations for this restroom at Three Mile, as described on pages 12 – 13 of the EA. No other location was deemed feasible.

***Comment:* Grand Canyon should consider an alternative that requires backcountry users to pack out their own human waste (allowing the heavily impacted cross-canyon corridor toilets to be maintained by mules). The analysis and implementation of this logical choice should not be**

deferred until the revised Backcountry Management Plan begins in 2005. Using helicopters to maintain these toilets is a needless expense and an aural intrusion to humans and wildlife.

Response: NPS agrees with the statement that the park should consider the feasibility of a program for backcountry users to pack out their own human waste from the backcountry. This concept was discussed during the preparation of the EA for the Replacement, Rehabilitation and Maintenance of Backcountry and Corridor Toilets (NPS 2003) and pack-out options were mentioned in that document on page 6, as repeated here:

Pack-Out Options: Grand Canyon National Park has recently begun a review of methods other than toilets to deal with human waste in the backcountry. The Park has recently been contacted by private vendors that produce products such as small plastic human waste pack-out “kits” intended to be given to backcountry users at the beginning of their trip and then packed out. Some National Parks and National Forests have begun programs such as this as part of their “leave no trace” programs and have had preliminary success. Grand Canyon National Park is in the early stages of determining the feasibility and applicability of a similar program in the backcountry. The upcoming revision of the Park’s Backcountry Management Plan, intended to begin at the end of 2005, will provide a logical forum for a detailed evaluation of such a program.

NPS does not agree that pack-out options should be considered as part of this project. NPS feels strongly that a composting toilet is warranted at both Three Mile and Pipe Creek due to the high level of use these corridor areas receive, primarily from day use visitors. Even if a pack-out program was initiated for the backcountry areas, it is unlikely it could feasibly address the need for restroom facilities along the heavily-used corridor trail system (Bright Angel Trail, South Kaibab Trail, and North Kaibab Trail). NPS continues to believe that the most appropriate forum for considering these types of issues related to backcountry management, parkwide, is with the upcoming revision of the Backcountry Management Plan.

While all aspects of a pack-out program have not been explored and will be considered part of the parkwide backcountry management planning effort, NPS is preliminarily skeptical about the feasibility of implementing such a program for the cross-canyon corridor. This corridor is heavily used by day hikers and simply the volume of use along this trail could negate the effectiveness of such a program. Effectively communicating the program and the park’s expectations of hikers on the corridor trails would also be difficult; while overnight guests accessing Phantom Ranch or traveling to backcountry locations via the Bright Angel Trail may be able to be contacted in advance and taught about “leave no trace” practices, etc. day-use visitors that venture down the Bright Angel Trail to destinations such as Mile and Half, Three Mile and Indian Garden are typically not visitors that can be easily contacted in advance. However, NPS acknowledges that the consideration of the cross-canyon corridor as well as the backcountry for a pack-out system should be considered during the process to revise the Backcountry Management Plan.

The concern raised regarding helicopter use in the backcountry is a concern shared by NPS. Minimizing the administrative use of helicopters in the backcountry is a management goal of the park and was a primary focus of the Backcountry Toilets EA (NPS 2003). Implementation of the preferred alternative described in the Backcountry Toilets EA is estimated to reduce helicopter flights into the inner canyon for toilet maintenance by about 60% at backcountry sites and by about 30% at cross-canyon corridor sites. The September 2004 EA for this project acknowledges that additional helicopter flights will be needed to maintain the two new composting toilets proposed at both Three Mile and Pipe Creek, primarily because of the current limitations of staff necessary for the use of mules for this maintenance. The EA states on page 26 that “...mules will be used instead of helicopters for periodic compost removal (at Three Mile) if additional staff are added to the maintenance program. The same statement is also made for Pipe Creek,

on page 30. Therefore, the park considers the use of helicopters for this maintenance a short-term solution, until additional staff can be hired to accommodate the growing program.

Comment: The EA states on page 15 that no vegetation will need to be totally removed at the Yavapai Observation Station restroom, but that some substantial pruning of mature trees near the building entrance will be needed where the trees intrude upon pedestrian paths. Upon further design and site planning, it has been determined that one large pinyon pine tree needs to be removed at this site and that pruning alone will not be sufficient. At a parkwide interdisciplinary team meeting on 12 January 2005, the team agreed that the removal of this tree was justified and there were no issues with its removal.

Response: The text on page 15 of the EA (fifth paragraph, under Comfort Station Rehabilitation, Yavapai Observation Station) has been changed to read as follows:

“...All work will be within previously disturbed areas. Substantial pruning of mature trees near the entrance will need to occur where the trees intrude upon paths/pedestrian circulation. Tree pruning will follow the Park’s pruning guidelines. One fairly large pinyon pine tree near the entrance will need to be totally removed as part of this project.”

References:

National Park Service. 2003. Environmental Assessment/Assessment of Effect: Replacement, Rehabilitation and Maintenance of Backcountry Toilets, Grand Canyon National Park, Arizona. United States Department of the Interior. Prepared by Deborah Lutch, March.

National Park Service. 2005a. Assessment of Actions Having an Effect on Cultural Resources (AEF) – Construction/Repair/Rehabilitation of Restrooms Parkwide, Grand Canyon National Park, Arizona. United States Department of the Interior. Prepared by Susan Weaver, January.

National Park Service. 2005b. Archeological Treatment Plan for Two Sites Affected by the Construction/Repair/Rehabilitation of Restrooms Parkwide, Grand Canyon National Park, Arizona. United States Department of the Interior. Prepared by Susan Weaver and Amy Horn, April.